

ON A MICRO-FUNGUS FROM MOUNT KOSCIUSKO;
AND ON THE FIRST RECORD OF *UNCINULA* IN
AUSTRALIA.

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(Communicated by J. H. Maiden, F.L.S.)

PUCCINIA CALTHÆ, Link.

(Plate xxiii., figs. 1-4).

Aecidiospores—Pseudoperidia distributed on upper surface of leaf and often confluent; white, margin lacinate, about $\frac{1}{3}$ mm. diam. Pseudoperidial cells pentagonal or hexagonal, margin finely streaked, 28-32 μ . Spores bright orange, angular to subglobose or oval, finely echinulate, average 22-23 \times 17-20 μ .

On living leaves of *Caltha introloba*, F.v.M.; January, 1899; Mt. Kosciusko, N.S.W. (Maiden).

Greville* describes the *Aecidium* as hypophyllous and on the petioles, but here it was epiphyllous and only on the blade of the leaf. The spores and pseudoperidial cells quite agree with British specimens.

There is a special interest attaching to this fungus from its geographical distribution. The host-plant was found in a rocky creek, on eastern side of Mueller's Peak, Mt. Kosciusko, at a height of about 6,500 feet. This was the only micro-fungus found there by Mr. Maiden, and at that season of the year (January) only the *Aecidium*-stage occurred. This is the first record of the fungus in Australia. It occurs also in Europe and America. Hitherto it has only been found on the Marsh Marigold (*Caltha palustris*, L.)

* Flora Edinensis, p. 446, 1824.

UNCINULA AUSTRALIANA, n.sp.—**Australian Uncinula.**

(Plate xxiii., figs. 5-9).

On twigs and leaves and covering entire inflorescence with a greyish-fawn, firm, powdery mass, usually studded over with the minute, black perithecia.

Conidial stage—Hyphae very slender, colourless, septate, branched, often only $1\ \mu$ broad and up to $2\frac{1}{2}\ \mu$. Conidia in chains, colourless, oblong, with finely granular contents, constant in size, $30 \times 13\text{--}14\ \mu$; (stained golden brown by potassium-iodide-iodine).

Perithecial stage—Perithecia intermixed with the conidia, densely gregarious, black, punctiform, dark brown by transmitted light, globular, with bulging boss-like polygonal markings on wall, $112\text{--}130\ \mu$ diam.; appendages rigid, radiating, occasionally forked, moderately numerous, hyaline, but basal portion brown, sometimes slightly swollen and marked off by a septum, rather longer than diameter of perithecium, average breadth $6\ \mu$, apex involute.

Mature asci and sporidia not found. Immature asci (4) colourless, roughly pear-shaped, with finely granular contents, except at tapering end, $28 \times 22\ \mu$.

Immature sporidium colourless, elliptical, with finely granular contents, $13 \times 10\ \mu$.

On *Lagerstræmia ovalifolia*, Teys.; February-May; Botanic Gardens, Sydney. Received from Mr. J. H. Maiden, but first observed by his assistant, Mr. A. Grant.

Although the perithecia are very numerous, mature asci were not distinctly found, and this is not because they have already burst and shed their spores, but that they are not yet formed, the contents of the perithecium usually consisting of formative material and oil globules. In apparently older perithecia, the contents are of a bright yellow colour.

Fresh specimens were obtained in both February and May, and the perithecia do not seem to mature their asci. The appendages were usually simple, but forking occasionally occurred,

sometimes just at tip, sometimes almost at base. In some of the forks the apex was pointed instead of being coiled.

This is the first time the genus has been recorded for Australia, hence the specific name. Fungi are only recorded on *L. indica*, L., but no Erysipheæ.

I am indebted for the drawing of the perithecium (fig. 6) to Mr. C. C. Brittlebank.

EXPLANATION OF PLATES.

Puccinia caltha, Link.

Fig. 1.—Dwarf plant shewing Aecidia on upper surface of leaf ($\times 2$).

Fig. 2.—Aecidiospores ($\times 1000$).

Fig. 3.—Aecidiospore from British specimen of *Caltha palustris* ($\times 1000$).

Fig. 4.—Pseudoperidial cells shewing marginal streaks ($\times 540$).

Uncinula australiana, n.sp.—Australian Uncinula.

Fig. 5.—Conidia in chains ($\times 540$) and solitary ($\times 1000$).

Fig. 6.—Perithecium with contents protruding ($\times 270$).

Fig. 7.—Forked appendages.

Fig. 8.—Ordinary appendage ($\times 540$) and coiled tip ($\times 1000$).

Fig. 9.—Immature ascus with sporidium ($\times 1000$).